

## IN THE CLAIMS:

Following entry of the present amendment, the claims are as follows:

Claim 1 (canceled).

Claim 2 (currently amended). A nonvolatile display comprising:

a plurality of electrodes arranged opposite each other, wherein the electrodes are arranged in the form of cross bar array for applying electric field to selected areas of the a nonvolatile solid state electro-optic medium; and

a the nonvolatile solid state electro-optic medium disposing between the electrodes,

wherein the nonvolatile solid state electro-optic medium is a perovskite material having magnetoresistive effect under the influence of an electric field.

Claim 3 (canceled).

Claim 4 (previously presented). A nonvolatile display comprising:

a plurality of electrodes arranged opposite each other;  
a nonvolatile solid state electro-optic medium disposing between the electrodes,

wherein the nonvolatile solid state electro-optic medium is a perovskite material having magnetoresistive effect under the influence of an electric field; and

a plurality of polarizer layers sandwiching the nonvolatile solid state electro-optic medium, the polarizer layers polarizing incident light.

Claims 5-10 (canceled).

Claim 11 (previously presented). A nonvolatile solid state electro-optic modulator comprising

a first electrode;

a second electrode offset from the first electrode;

a nonvolatile solid state electro-optic medium disposing in the close proximity of the two electrodes whereby the optical properties of the electro-optic medium can be influenced by the electric field established by the two electrodes; and

a plurality of optical waveguides supported in the electro-optic medium;

wherein the nonvolatile solid state electro-optic medium is a perovskite material having magnetoresistive effect under the influence of an electric field.

Claim 12 (previously presented). A modulator as in claim 11 further comprising a plurality of insulator layers disposing between the electrodes and the electro-optic medium.

Claim 13 (previously presented). A modulator as in claim 11 further comprising a plurality of cladding layers covering the waveguides.

Claim 14 (previously presented). A modulator as in claim 11 wherein the optical waveguides are embedded in the electro-optic medium.

Claim 15 (previously presented). A modulator as in claim 11 wherein the modulator further comprises a third electrode and functions as an interferometer.

Claim 16 (previously presented). A modulator as in claim 11 wherein the modulator comprises one optical waveguide and functions as a phase modulator.

Claim 17 (previously presented). A modulator as in claim 11 wherein the modulator comprises two optical waveguide and functions as an amplitude modulator, a directional coupler or a waveguide switch.

Claim 18 (previously presented). A modulator as in claim 11 wherein the nonvolatile solid state electro-optic medium is a manganite.

Claim 19 (previously presented). A modulator as in claim 11 wherein the nonvolatile solid state electro-optic medium is a manganite having a  $\text{Re}_{1-x}\text{Ae}_x\text{MnO}_3$  structure with Re being a rare earth elements and Ae being an alkaline earth elements.

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Claim 20 (previously presented). A modulator as in claim 11 wherein the nonvolatile solid state electro-optic medium is selected from a group consisting of  $\text{PrCaMnO}_3$  (PCMO),  $\text{LaCaMnO}_3$  (LCMO),  $\text{LaSrMnO}_3$  (LSMO),  $\text{LaBaMnO}_3$  (LBMO),  $\text{LaPbMnO}_3$  (LPMO),  $\text{NdCaMnO}_3$  (NCMO),  $\text{NdSrMnO}_3$  (NSMO),  $\text{NdPbMnO}_3$  (NPMO), and  $\text{LaPrCaMnO}_3$  (LPCMO).